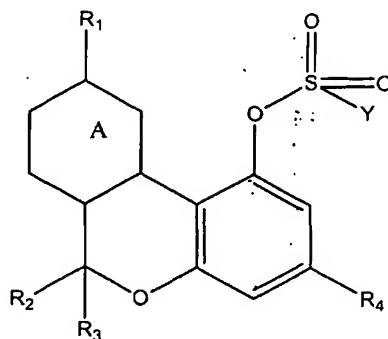


Claims

1. Cannabinoid esters as represented by the formula comprising:



Formula A

wherein R_1 , R_2 , R_3 , and R_4 are H or an alkyl;

A is a saturated alkane, alkene, diene or aromatic ring; and

Y is an aryl.

2. The ester according to Claim 1, wherein the aryl is selected from the group consisting of benzene, alkyl substituted benzene, halogen substituted benzene, nitrobenzene, alkyloxy substituted benzene and substituted and unsubstituted naphthyl compounds.

3. A process for the preparation of cannabinoid aryl sulfonates comprising:

reacting at least one cannabinoid with at least one aryl sulfonyl halide in the presence of at least one base.

4. The process according to Claim 3, wherein the cannabinoid is a naturally occurring component of cannabis.

5. The process according to Claim 3, wherein the aryl of the at least one aryl sulfonyl halide is selected from the group consisting of benzene, alkyl substituted benzene, halogen substituted benzene, nitrobenzene, alkyloxy substituted benzene, substituted naphthyl compounds and unsubstituted naphthyl compounds.

6. The process according to Claim 3, wherein the at least one base is at least one tertiary amine.

7. The process according to Claim 6, wherein the at least one tertiary amine is represented by the formula $R_5R_6R_7N$, wherein R_5 , R_6 and R_7 are alkyl groups.

8. The process according to Claim 3 further including mixing the at least one cannabinoid, the at least one aryl sulfonyl halide and the at least one base in an organic solvent prior to the reacting of the at least one cannabinoid with the at least one aryl sulfonyl halide in the presence of the at least one base and further includes removing the organic solvent after the step of reacting the at least one cannabinoid with the at least one aryl sulfonyl halide in the presence of the at least one base.

9. The process according to Claim 8, wherein the organic solvent is selected from the group consisting of toluene, methylene chloride, chloroform and heptane.

10. A process for the purification of a cannabinoid comprising:
esterifying the cannabinoid with at least one aryl sulfonyl halide in the presence of at least one base to form a cannabinoid aryl sulfonate; and
allowing the cannabinoid aryl sulfonate to crystallize.

11. The process according to Claim 10, wherein the allowing of the cannabinoid aryl sulfonate to crystallize further includes adding at least one solvent and at least one seed crystal.

12. The process according to Claim 11, wherein the at least one solvent is selected from the group consisting of methanol, heptane, hexane, t-butyl methyl ether, n-pentanol, n-butanol, isopropanol, isobutanol, ethanol, acetone, acetonitrile and isopropyl acetate.

13. The process according to Claim 10 further including recrystallizing the cannabinoid aryl sulfonate to purify the cannabinoid aryl sulfonate.

14. The process according to Claim 10, wherein the cannabinoid is a naturally occurring component of cannabis.

15. The process according to Claim 10, wherein the aryl of the at least one aryl sulfonyl halide is selected from the group consisting of benzene, alkyl substituted benzene, halogen substituted benzene, nitrobenzene, alkyloxy substituted benzene, substituted naphthyl compounds and unsubstituted naphthyl compounds.

16. The process according to Claim 10, wherein the at least one base is at least one tertiary amine.

17. The process according to Claim 10, wherein the at least one tertiary amine is represented by the formula $R_5R_6R_7N$, wherein R_5 , R_6 and R_7 are alkyl groups.

18. A process for the purification of a cannabinoid comprising:
esterifying the cannabinoid with at least one aryl sulfonyl halide in the presence of at least one base to form a cannabinoid aryl sulfonate;
allowing the cannabinoid aryl sulfonate to crystallize; and
hydrolyzing the cannabinoid aryl sulfonate to recover the cannabinoid.
19. The process according to Claim 18 further including recrystallizing the cannabinoid aryl sulfonate to purify the cannabinoid aryl sulfonate.
20. The process according to Claim 18, wherein the cannabinoid is a naturally occurring component of cannabis.
21. The process according to Claim 18, wherein the aryl of the at least one aryl sulfonyl halide is selected from the group consisting of benzene, alkyl substituted benzene, halogen substituted benzene, nitrobenzene, alkyloxy substituted benzene, substituted naphthyl compounds and unsubstituted naphthyl compounds.
22. The process according to Claim 18, wherein the at least one base is at least one tertiary amine.
23. The process according to Claim 18, wherein the at least one tertiary amine is represented by the formula $R_5R_6R_7N$, wherein R_5 , R_6 and R_7 are alkyl groups.
24. The process according to Claim 18 wherein hydrolyzing the cannabinoid aryl sulfonate comprises base hydrolysis.

25. The process according to Claim 18 wherein hydrolyzing the cannabinoid aryl sulfonate is accomplished at a temperature of at least about 40°C.

26. The process according to Claim 18 wherein hydrolyzing the cannabinoid aryl sulfonate is accomplished at a temperature of about 40°C to about 80°C.

27. The process according to Claim 18 wherein hydrolyzing the cannabinoid aryl sulfonate is accomplished at a temperature of about 50°C to about 70°C.

28. A process for hydrolyzing a cannabinoid aryl sulfonate comprising
reacting the cannabinoid aryl sulfonate with at least one metal salt of an alkyl oxide in at least one alkyl alcohol.

29. The process according to Claim 28 wherein the at least one metal salt of an alkyl oxide and the at least one alkyl alcohol contain from one to about six carbon atoms.

30. The process according to Claim 28 wherein the at least one metal salt of an alkyl oxide and the at least one alkyl alcohol are comprised of the same alkyl group.

31. The process according to Claim 28 wherein hydrolyzing the cannabinoid aryl sulfonate is accomplished at a temperature of at least about 40°C.

32. The process according to Claim 28 wherein hydrolyzing the cannabinoid aryl sulfonate is accomplished at a temperature of about 40°C to about 80°C.

33. The process according to Claim 28 wherein hydrolyzing the cannabinoid aryl sulfonate is accomplished at a temperature of about 50°C to about 70°C.